

THE DIAGNOSIS OF THE SICK CITY.

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Mr. Paul U. Kellogg, who has been aptly designated as the arch surveyor of the nation, likens the survey to a great blueprint of the community as a going institution. On account of a different training and a different point of view, perhaps, I am more inclined to compare the survey to the doctor's case record,—that faithful portrayal of the physical and functional conditions of the patient upon which we may base an accurate diagnosis and from which we may determine a logical and effective line of treatment.

In this case record we find a review of the ancestry, the heredity, nationality, home and work conditions, vocation and methods of play, personal habits, the nature of his food and drink, peculiar susceptibility or exposure to disease; a review of the physical defects found on careful examination and a list of the functional disorders or symptoms,—the very things which in the survey, we desire to ascertain regarding the community as a whole and its citizens.

The sanitary and health survey, which interests me most, is simply the systematic examination and diagnosis of the sick city,—but this is likewise true of any form of survey, social, moral, educational or religious. There are maladies of mind as well as body and even crime,—in this day of greater humanity and intelligence,—is looked upon as a form of disease.

But considering chiefly the sanitary and health survey, what cities may we regard as the proper ones for the services of the municipal diagnostician? I should say that any city which has any considerable typhoid fever mortality, say more than five per 100,000 of population, is a sick city; any city in which there is an infant mortality which may be directly or indirectly traced to an imperfect milk supply is a sick city; all those in which tuberculosis continues to reap its customary harvest are sick cities and all those in which preventable sickness and preventable deaths continue to occur are confessedly in need of special examination and medical care.

Measured by such a reasonable standard, every city in these United States is a sick city which will be the better for a careful diagnosis of its ills. And, incidentally, each city will be found to suffer, not from a single well-defined malady, but from an intricate complication of preventable diseases.

To be sure all cities are not willing to admit their physical and functional inefficiency. In spite of our intellectual advancement, we still see that municipal braggadocio which indicates a blind preference for comfortable

but dangerous self-deception rather than the safer knowledge of the ugly truth.

In tuberculosis work we find the case records of several types of cases, all of which are so strikingly analogous to the results of municipal surveys that I am tempted to dwell upon them for a moment.

We find the advanced case;—frankly and obviously sick, his very appearance giving the lie to his optimistic claims of health. Like the frankly and rottenly sick city, this patient needs no one to tell him that he is a wreck and requires active treatment if he is to recover. But even in these advanced cases,—either individual or municipal,—an accurate diagnosis of the exact nature and extent of the disease is essential to any hope of improvement or recovery.

Then we find another type, the patient who realizes that he is not well but who attributes his indisposition to all manner of vague symptoms;—a man wholly unaware of the true nature of his disease. These are the cases where correct diagnosis, based upon careful examination, will indicate the proper treatment and will stay the progress of the disease.

Such are the cities whose intelligent citizens realize that something is wrong and where the hit-or-miss methods of oldtime empiricism will not forestall deplorable results.

Then there is that interesting group of cases where real illness is not even suspected; where the patient resents the slightest inference that he belongs to the army of marked men; and yet where the trained eye and the skilful senses of the diagnostician detect the incipient disease which, if uncured, will one day sap the vitality and bring about complete wreckage. Such is the average active American city;—content in its ignorance of its illness,—the city in which only the foresight of the surveyor will prevent future calamity.

Today in the few moments allotted for that purpose, I want to present to you the case record of one sick city;—a city with no predominating symptoms pathognomonic of a definite ailment, but one in which there was just enough evidence of indisposition to prompt the employment of modern diagnostic methods. This case record is the story of the so-called “Sanitary Survey of Springfield”;—a modest study of the sanitary conditions of a city of fifty or sixty thousand people which resulted I believe in a proper diagnosis of the city’s illness and which has already brought about considerable improvement in municipal conditions.

At the time we undertook the sanitary study of Springfield, if someone had suggested such a thing as a “sanitary survey” I should have replied that we were not in a position financially or otherwise for such an ambitious undertaking.

As it was we knew that Springfield was showing some symptoms of functional disorder and we simply started out to ascertain the causes of

these symptoms and without the faintest idea how far our studies would carry us. We knew that the city had a higher typhoid fever mortality than other cities of like size and similarly situated. We knew that we had houses and tenements that served as centers of infection and other diseases. We realized that our infant mortality was too high. We started out simply with the purpose of ascertaining the causes of our undue morbidity and mortality—with the idea of making a definite diagnosis—that we might be able to take intelligent steps to decrease sickness and prevent death.

In 1910 Springfield had a typhoid fever mortality of something over 40 per 100,000 of population. This mortality had been as high as 85 per 100,000 and the last year recorded showed a mortality of 52. That was twice as high as it should have been. Half of our deaths from this disease were apparently unnecessary.

Four million dollars had been expended by the city for water works and sewer system, and the mains extended to all sections of the town. We made repeated analyses of the city water, extending over a long period of time, and found that the public supply was always safe for domestic use. We had to go further to locate the cause of our excessive typhoid fever mortality. Analyses were made from 150 samples of supposedly good wells. All but three were found to be dangerously polluted. Then the question arose as to the extent to which wells were used in the city and the cause of well pollution. On these points, as is true in practically every other city in the United States where wells are used, reliable information was entirely unobtainable.

There was but one thing left to do and that was to have the four underpaid, untrained but enthusiastic inspectors of the health department visit each of the 9,000 homes spread over the 1,600 blocks of the city to locate every well and vault and to ascertain the general sanitary conditions of all premises. It required two months to cover the city, the work being done in addition to the rather exacting routine duties of the department. The results plainly told the story of our typhoid fever.

The 9,000 homes of the city had 6,000 shallow wells, the pollution of which was guaranteed by 7,000 privy vaults. There were 6,000 polluted wells in the city, and the water mains and sewers were convenient to 5,000 of the premises that maintained them. That is the use of 5,000 of the 6,000 polluted wells in the city was entirely unnecessary. From a sanitary standpoint the city's expenditure of \$4,000,000 was wasted.

I should make this statement about my home town with reluctance were it not that Mr. Hiram Messenger has advised me after studying the typhoid conditions of over thirty cities of from 40,000 to 100,000 people, that Springfield is now the only one in which he could obtain accurate data as to wells and well pollution.

But we were not content with this partial diagnosis. Our patient had typhoid fever; but there were unquestionably other complications.

Our tuberculosis death rate largely depended upon bad housing and house infection was inordinately high,—225 per 100,000 of population.

With this in view the inspectors in their house-to-house canvass, noted all tenements and bad housing conditions and the data furnished by them along this line afforded the basis for the housing investigations we have since carried on. We have studied, charted out and photographed the worst housing conditions in the city and we are now ready to do our part in convincing the Illinois General Assembly that there are slums in the smaller cities and that there is a crying need for good state housing laws.

In this housing investigation we took a tuberculosis census of the worst tenements and fumigated and disinfected as far as possible. We succeeded in improving the conditions of the worst tenements; but lack of state laws made satisfactory action impossible.

As I have stated, we were making this investigation entirely without a plan or system. Each undertaking when completed had pointed out something else that required attention, and at this juncture we found a new force urging us on. This was an aroused public interest. The better element of the people were watching to see what we would do next and the four daily newspapers of the city backed up our work and featured everything that was undertaken. This aroused interest was sufficient to hush all opposition.

We were now ready to consider our infant mortality. Our first effort was in the direction of an honest milk, containing a reasonable butter fat and total solids and free from preservatives. We recognized that this was a commercial rather than a public health proposition.

We realized that "the amount of manure the milk contains is more important than the amount of butter fat" and we determined to visit and inspect all the dairies furnishing milk to the city. In this tour of inspection we determined to teach the dairymen and farmers the prerequisites of pure and clean milk; but we warned all of them that inspection would be made from time to time and that the conditions of all dairies would be made a matter of public record open to milk consumers.

This investigation of dairies was followed by inspection of restaurants and bakeries, the details of which cannot interest you here. The results, however, were gratifying to us.

We are now engaged upon an investigation of garbage collection and disposal, studying our own conditions and the methods of other cities. We are trying to solve what I am inclined to regard as the liveliest public health problem of American municipalities—a problem, incidentally, which is not yet solved ideally be even the largest of cities.

The Springfield sanitary survey is not complete, nor will it be for several

years to come. We are studying the town part by part and we are preserving all our data in the hope that we may be able some day to show a complete sanitary survey of a smaller city. But every step is being taken with a definite plan in view. We have to produce results and results we can show the people.

The people, as a rule, will give active coöperation to work of this kind. They will be tolerant of criticism of local conditions. But after awhile they will meet you with the essentially practical and entirely proper demand, "Now that you have given us all this undesirable publicity, what have you accomplished?" Incidentally they are not to be satisfied with a story of "interesting data." The only way you can safely use a town as clinical matter is to cure its sores.

We had now gotten sufficiently far in our diagnosis to begin to relieve the symptoms and our study of the case had made the line of treatment clear.

The results of our investigation were not bound in red morocco and filed away to decay, nor were they hopelessly buried in dreary and unread reports. We prepared a large map of the city, large enough to show each house by number and the gross sanitary conditions of all premises. Each unsanitary lot was shown in red and every well, vault, sewer, water main, vacant lot, business property and public building was indicated by symbol or color.

We knew the facts; but we had to demonstrate them to get results. The map was shown at a luncheon to three hundred members of the Chamber of Commerce, with a talk on "The Truth about Springfield." The business men endorsed our work and the newspapers gave the facts wide publicity. Next the map was hung in the council chamber and the members of the city council were shown why we should have ordinances compelling property holders to connect their property with sewers and water mains. The ordinances were passed in three weeks, although we had vainly sought to secure such ordinances for over two years.

Then another interesting thing developed. Protest on the part of the business men gave way to serious consideration. The work had gone too far to be stopped and it became the part of wisdom to fall in with it. Real estate men advertised their property on its sanitary merits and money became harder to borrow on unsanitary property. For the first time in the community, sanitation took on a commercial value.

During the house-to-house canvass the inspectors made notes of all unsanitary conditions and all nuisances and these were ordered remedied and abated.

For twelve years the average mortality from typhoid fever in Springfield had been something over forty per 100,000 population. In 1910, the year our investigation was undertaken, it was fifty-two. In 1911, the year

after our agitation of polluted wells and the passage of sanitary ordinances, our typhoid fever mortality was in the twenties. The record of one year is not conclusive. Such a result immediately following sanitary agitation, however, is suggestive and encouraging.

In 1909, sixty-eight infants died from summer diarrhea; in 1910, even after we had a good commercial milk supply, there were sixty-four deaths. In 1911, after our dairy inspections, there were forty-one deaths. This may be coincidence but it is suggestive.

In 1910 there were 118 deaths from tuberculosis and that year housing investigations were conducted, a census of consumptives taken, infected premises were fumigated, a tuberculosis dispensary was established, tuberculosis nurses were placed in the field and a vigorous campaign of education was begun. In 1911 there were ninety-nine deaths from tuberculosis and our rate had fallen from 225 to 166 per 100,000 of population.

It can hardly be accepted as accidental that there was a fifty per cent. decrease in the typhoid mortality; a thirty per cent. decrease in infant mortality and a thirteen per cent. decrease in tuberculosis immediately following activity against these diseases especially when we note that the total number of deaths showed its regular increase in proportion to the increased population. And the element of coincidence is the more eliminated when we see that the mortality for the first eight months of 1912 corresponds with the low rate of 1911.

My only excuse for burdening you with the details of our work in a small mid-western town is to make you realize that the small town has real sanitary and public health problems unappreciated by the people, to demonstrate that reasonably good results may be attained without an elaborate plan and without any considerable expenditure of money. The same excuse will justify this additional detail.

The collection of data in our work was entrusted to four inspectors, already overworked and receiving \$60 per month—men entirely without sanitary training and three of them with little more than a ward school education. They have served as sanitary inspectors, dairy inspectors, housing inspectors, as conditions required, their only instruction being such as we could give them; but each man being fully informed as to what we were trying to do and why.

In addition to the salaries of these inspectors, which had been paid from time immemorial, the total cost of the survey and the sanitary map to the city of Springfield was less than \$100.

There is but one other thought in connection with our sanitary study. We were after a direct result, the reduction of morbidity and mortality. We are encouraged to believe that we have accomplished at least enough to justify the effort. But we now feel that we see other results more gratifying and far-reaching than we had anticipated.

Our work had been accompanied by unrestrained publicity. We accentuated the civic needs of the city in every way and we feel that we perhaps stimulated others to activity in their individual lines. We had demonstrated, perhaps, that civic improvement was not so difficult to bring about as had been generally believed and we had possibly stimulated a general spirit of investigation.

At any rate whether our sanitary investigations had anything to do with it or not, a great many things have come about during the past two years. A detention home has removed children from the jail and has simplified the work of an excellent trained probation officer. A tuberculosis association of 1,000 members operates a dispensary and employs visiting nurses. Medical inspection of school children has been established. The almshouse of Sangamon County is being thoroughly studied from medical and sociological standpoint and provision is being made for county care of indigent consumptives. The dispensing of county charity has been placed in better hands. But most important the people are awakened to the necessity of a through knowledge of local conditions, and a broad and sweeping survey of the city—a real survey this time—is being considered and is practically assured.